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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,907	04/15/2004	James J. Keenan	381-27-065	8929
23935	7590	05/03/2006	EXAMINER	
KOPPEL, PATRICK & HEYBL 555 ST. CHARLES DRIVE SUITE 107 THOUSAND OAKS, CA 91360			PAPE, ZACHARY	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.		Applicant(s)	
	10/825,907		KEENAN ET AL.	
	Examiner		Art Unit	
	Zachary M. Pape		2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following detailed action is in response to the correspondence filed 2/13/2006.

The objection to claims 3 and 13 have been withdrawn in view of the amendment to claim 3.

The 112 rejection to claims 13 and 14 have been withdrawn in view of the amendment to claim 13.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 8, 24-25, 27-31, 33-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Gudmundsson et al. (US 2001/0033961).

With respect to claim 1, Gudmundsson et al. teaches a cabinet, comprising: an inner cabinet (As illustrated in attached Fig) comprising a plurality of inner walls that form an enclosure (As illustrated in attached Fig); a first phase change material (PCM - 7) disposed outside said enclosure in compartments (35) and covering at least some of said plurality of inner walls (I.E. top of 5, see also Paragraph 23); an outer cabinet (Comprising 23, and 25) positioned around said inner cabinet (As illustrated in Fig 1) and also comprising a plurality of outer walls arranged such that there is a space

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(Where arrow 31 is present) between said inner and outer walls; and a mechanism (15) for drawing air from outside of said outer cabinet into the space between said inner and outer walls (As illustrated in Fig 1, air enters at 24, then passes in the void between 23 and 3).

With respect to claim 2, Gudmundsson et al. further teaches that the inner cabinet comprises top and bottom walls and a plurality of substantially vertical walls running between said top and bottom wall (As illustrated in attached illustration, "inner walls").

With respect to claim 5, Gudmundsson et al. further teaches that the at least some of said outer walls (Comprising 23, 25) are adjacent to said substantially vertical walls (As illustrated in attached illustration), said mechanism (15) for drawing air arranged to draw outside air between each of said substantially vertical walls and its adjacent one of said outside walls (As illustrated in attached illustration).

With respect to claim 8, Gudmundsson et al. further teaches comprising a controller (17) for controlling said mechanism for drawing air.

With respect to claim 24, Gudmundsson et al. further teaches an electrical enclosure, comprising: a plurality of walls (As illustrated in attached illustration, labeled "inner walls") to establish an electrical component cavity (Comprising 8a); and a phase-change material (7) substantially covering at least one of said plurality of walls (Wherein one of the walls is the top wall of 5 and the phase change material 7 substantially covers the wall); wherein said phase change material insulates said electrical component cavity from heat energy (The phase change material will absorb at least

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some heat energy during the phase change, and since the temperature of the medium during a phase change stays constant, the enclosure will be insulated from at least some heat energy).

With respect to claim 25, Gudmundsson et al. further teaches that the phase change material comprises a hydrated salt (Paragraph 29).

With respect to claim 27, Gudmundsson et al. further teaches a plurality of phase change material containers (35) disposed on one of said plurality of walls to contain said phase-change material (Paragraph 23, Lines 15-18).

With respect to claim 28, Gudmundsson et al. further teaches an exterior wall (Bottom support just below the fan) spaced apart from at least one of said plurality of phase-change material containers to establish an air space.

With respect to claim 29, Gudmundsson et al. further teaches a fan (15) to draw air through said air space (8b).

With respect to claim 30, Gudmundsson et al. further teaches an electrical enclosure, comprising: a plurality of walls (As illustrated in Fig 1) establishing an electrical component cavity (Comprising 8a); a phase-change material (7) and means (5) for containing said phase-change material, said means for containing disposed on one of said plurality of walls (5 is disposed on both the left wall (The wall in which 11 is disposed) and the right wall (The wall in which 13 is disposed)) to establish insulation against heat energy (The phase change material within the means will absorb heat energy and thus establish insulation against heat energy); wherein said phase-change material provides insulation for said electrical enclosure.

With respect to claim 31, Gudmundsson et al. further teaches that the phase change material comprises a hydrated salt (Paragraph 29).

With respect to claim 33, Gudmundsson et al. further teaches a plurality of phase change material containers (35) disposed on one of said plurality of walls to contain said phase-change material (Paragraph 23, Lines 15-18).

With respect to claim 34, Gudmundsson et al. further teaches an exterior wall (Wall in which the controller (17) is attached, as illustrated in Fig 1) spaced apart from at least one of said plurality of phase-change material containers (Since 5.1 of Fig 2 can be placed in 5 of Fig 1 above, the phase change material containers (35) are spaced apart from the exterior wall) to establish an air space (8b).

With respect to claim 35, Gudmundsson et al. further teaches a fan (15) to draw air through said air space (8b).

With respect to claims 36-38, the method steps recited in the claims are inherently necessitated by the device structure as taught by the Gudmundsson et al. reference.

With respect to claim 39, Gudmundsson et al. further teaches an electrical enclosure, comprising: a phase-change panel (5); an exterior panel (The bottom most panel in which 17 is attached as illustrated in Fig 1) spaced adjacent to said phase change panel; and a fan (15) to circulate air between said phase change panel and exterior panel; wherein said fan reduces thermal energy introduced to said phase-change panel by said exterior wall (Since the fan will carry away heat the exterior panel, it will reduce thermal energy introduced to the phase change panel by the exterior wall).

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With respect to claim 40, Gudmundsson et al. further teaches that the phase-change panel comprises: a plurality of containers (35); and a phase-change material disposed in said containers to absorb heat energy (Paragraph 23, Lines 15-18).

With respect to claim 41, Gudmundsson et al. further teaches that the phase-change panel comprises: spacers (Fig 2 illustrates spacers dividing each cavity (35)) to maintain a cavity for a phase-change material disposed in said phase-change panel.

Claims 15-16, 19, 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Glover et al. (US 6,104,611).

With respect to claim 15, Glover et al. further teaches a thermally insulated electrical cabinet, comprising: first and second (15) substantially vertical supports; a phase-change material (70) disposed between and contacting said first and second supports (As illustrated in Fig 1); and a third support (40) to establish an air gap with said second support; wherein said phase change material inhibits heat transfer between said first and third supports.

With respect to claim 16, Glover et al. further teaches that the third support (40) comprises an exterior wall for said electrical cabinet (As illustrated in Fig 1 above).

With respect to claim 19, Glover et al. further teaches an exterior wall Opposite 40) spaced apart from one of said first and second supports to establish an air space (As illustrated in Fig 1).

With respect to claim 21, Glover et al. further teaches that the first support comprises: a flange (That which is bent under the PCM and connects to the support

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opposite 40) adapted to couple said first support to said second support (As illustrated in Fig 1, where the flange connects to the bottom support which in turn connects to the second support).

With respect to claim 22, Glover et al. further teaches that the second support (15) comprises: a flange (Bent under 15 which connects to the bottom support) to provide bending stiffness to said second support (See Fig 1).

With respect to claim 23, Glover et al. further teaches a spacer (32) disposed between said first and second supports (As illustrated in Fig 1).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundsson et al. in view of Glover et al. (US 6,104,611).

With respect to claim 3, Gudmundsson et al. teaches the limitations of claim 2 above, and further teaches that the first PCM is arranged in horizontal compartments but fails to teach that the first PCM is covering at least one of said substantially vertical walls. Glover et al. teaches the conventionality of cover substantially vertical walls (15) with a PCM (70). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Glover et al. with that of

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Gudmundsson et al. to provide additional thermal control of packaged electronic equipment (Glover et al. Column 2, Lines 6-9).

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundsson et al in view of Stoller (US 6,164,369).

With respect to claim 6, Gudmundsson et al. teaches the limitations to claim 5 above, but fails to teach that the mechanism (15) for drawing air comprises a fan panel having a plurality of fans each of which is arranged to draw outside air between one of said substantially vertical walls and its adjacent one of said outside walls. Stoller teaches a cabinet (12) that utilizes a fan panel (33) having a plurality of fans (42) each of which is arranged to draw outside air into the inner cabinet (As illustrated in Figs 2, 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the fans of Stoller with the cabinet of Gudmundsson et al. to provide additional cubic feet per minute of cooling to the phase change material to reduce the time necessary for the PCM to return to the solid state from the liquid state.

With respect to claim 7, Stoller further teaches that the fan panel can selectively operate each of its said plurality of fans selectively draw outside air between one of said substantially vertical walls and its adjacent one of said outside walls (As illustrated in Fig 1, Stoller has two fans (42) each of which CAN be operated selectively to draw outside air into the cabinet).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundsson et al.

With respect to claim 9, Gudmundsson et al. teaches the limitations of claim 2 above, but fails to specifically teach that the vertical walls comprises a tray for holding said phase change material, however It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the vertical walls of Gudmundsson et al. comprises trays (5.1 as illustrated in Fig 2) such that phase change material would be mounted to the vertical walls to further protect the inner cabinet from harsh fluctuations in temperature.

Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundsson et al. in view of Baer (US 4,913,985).

With respect to claim 10, Gudmundsson et al. teaches the limitation of claim 1 above, but fails to teach that the cabinet comprises a layer of insulation on the inside surface of each of said outer walls. Baer teaches utilizing insulation (16) on the inside of a battery enclosure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the insulating material of Baer with the cabinet of Gudmundsson et al. in order to inhibit heat transfer from outside the enclosure (Baer, Column 3, Lines 5-6). Inhibiting heat transfer will allow the internal batteries to remain cool when there are warmer exterior temperatures.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundsson et al. in view of Craft, Jr. et al. (Hereinafter "Craft").

With respect to claim 11, Gudmundsson et al. teaches that the bottom walls are covered by a layer of phase change material (As illustrated in the attached illustration), but fails to teach that the top wall is covered by a layer of phase change material. Craft teaches the conventionality of placing a phase change material on a top wall. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Craft with that of Gudmundsson to further reduce temperature fluctuations (Craft, Column 2, Lines 11-16).

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudmundsson et al. in view of Marongiu et al.

With respect to claim 12, Gudmundsson et al. teaches that the inner cabinet is arranged to hold batteries (9, as illustrated attached illustration). Gudmundsson et al. fails to teach that the inner cabinet further comprising a hydrogen filter to expel hydrogen from within said inner cabinet. Marongiu et al. teaches dissipating fumes generated by batteries (i.e. hydrogen) through the use of air filtration (Page 31, Left Column, Final Paragraph). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the air filtration of Marongiu et al. with the cabinet and batteries of Gudmundsson et al. to provide a means of removing the fumes from an enclosed area. Removing the fumes prevents buildup of harmful chemicals which could corrode the cabinet and further become a fire hazard.

With respect to claim 13, Gudmundsson et al. teaches the limitations of claim 1 above but fails to teach an air inlet duct to allow air into said inner cabinet as a hydrogen filter expels said hydrogen. Marongiu et al. teaches an air inlet duct which allows air into said inner cabinet as said hydrogen filter expels said hydrogen (Page 31, Left Column, Final paragraph where Marongiu states, "must also include the heat being brought in..". In order for the heat to be brought into the inner cabinet, it must contain an air inlet duct). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Marongiu et al. with that of Gudmundsson et al. to provide a means or removing fumes from an enclosed area. Removing the fumes prevents buildup of harmful chemicals which could corrode the cabinet and further become a fire hazard.

Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glover et al. in view of Gudmundsson et al.

With respect to claim 17, Glover et al. teaches the limitations of claim 15 above, but fails to teach that the phase-change material comprises a hydrated salt. Gudmundsson et al. teaches the conventionality of using a salt as a phase change material (Paragraph 29). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Gudmundsson et al. with that of Glover et al. to provide composition with the appropriate phase change temperature.

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With respect to claim 20, Glover et al. teaches the limitations of claim 19 above, but fails to teach a fan to draw air through said air space. Gudmundsson et al. teaches the conventionality of ventilating an air space via a fan (15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Gudmundsson et al. with that of Glover et al. to provide regulation to the phase change material (Gudmundsson et al. Paragraph 19).

Claims 18, 26 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glover et al. in view of Salyer et al. (US 6,192,703).

With respect to claims 18, 26 and 32, Glover et al. teaches the limitation of claims 15, 24, and 30 above, but fails to teach that the phase change material comprises a linear crystalline alkyl hydrocarbon. Salyer et al. teaches using a linear crystalline alkyl hydrocarbon as a phase change material (Salyer; Column 8, Lines 35-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Salyer et al. with the cabinet of Glover et al. to provide a non-toxic, affordable, and commercially available phase change material (Salyer; Column 8, Lines 41-59)

Allowable Subject Matter

3. Claims 4 and 14 are allowed (See the reasons for allowance in the office action dated 9/12/2005).

Response to Arguments

4. Applicant's arguments filed 4/25/2006 have been fully considered but they are not persuasive.

With respect to the applicants' remarks to claim 1 that, "Gudmundsson instead teaches a structure where the PCM 7 is disposed inside the container 5" the examiner respectfully agrees, but further notes that the applicants merely require that the first phase change material be disposed outside the enclosure in compartments. The examiner respectfully notes that the interpretation of the Gudmundsson reference as taken in the rejection above satisfies this and every other limitation of claim 1.

With respect to the applicants' remarks to claims 24-29 that, "the phase change material would have to be on the inside of any cavities taught by Gudmundsson", the examiner respectfully disagrees. As detailed in the attached illustration, the examiner has defined the cavity to be the space (8a) which is surrounded by the inner walls (Of which the top wall of 5 which the batteries appear to rest on are included). Since the PCM is located below the top wall of 5, it is disposed outside of the component cavity.

With respect to the applicants' remarks to claims 30-38 that, "Gudmundsson does not teach a structure that provides insulation for the electrical enclosure as required by claim 30", the examiner respectfully disagrees. The phase change material of Gudmundsson, while acting in the manner described in the present remarks, will also perform in the same way that the phase change material of the present invention performs. That is, in the same way that the phase change material which surrounds an

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enclosure of the present invention will insulate the interior, the phase change material of Gudmundsson will also provide insulation for the electrical enclosure (8a).

With respect to the applicants' remarks to claim 39-41 that, "Gudmundsson does not teach all the limitations of Applicants' claim 39" since, "the fan disposed beneath the contain 5 designed to carry heat generated inside the container to the outside atmosphere through outlet 13", the examiner respectfully notes that claim 39 merely requires that the fan, "reduces thermal energy introduced to said phase-change panel by said exterior wall". The examiner further notes that the fan (15) of Gudmundsson will carry away heat from the exterior panel (Bottom panel which is just below 15) and thus reduce thermal energy introduced to the phase change panel (15) by the exterior wall.

5. Applicant's arguments with respect to claims 15-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary M. Pape whose telephone number is 571-272-2201. The examiner can normally be reached on Mon. - Thur. & every other Fri. (8:00am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached at 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ZMP


LISA LEA-EDMONDS
PRIMARY EXAMINER

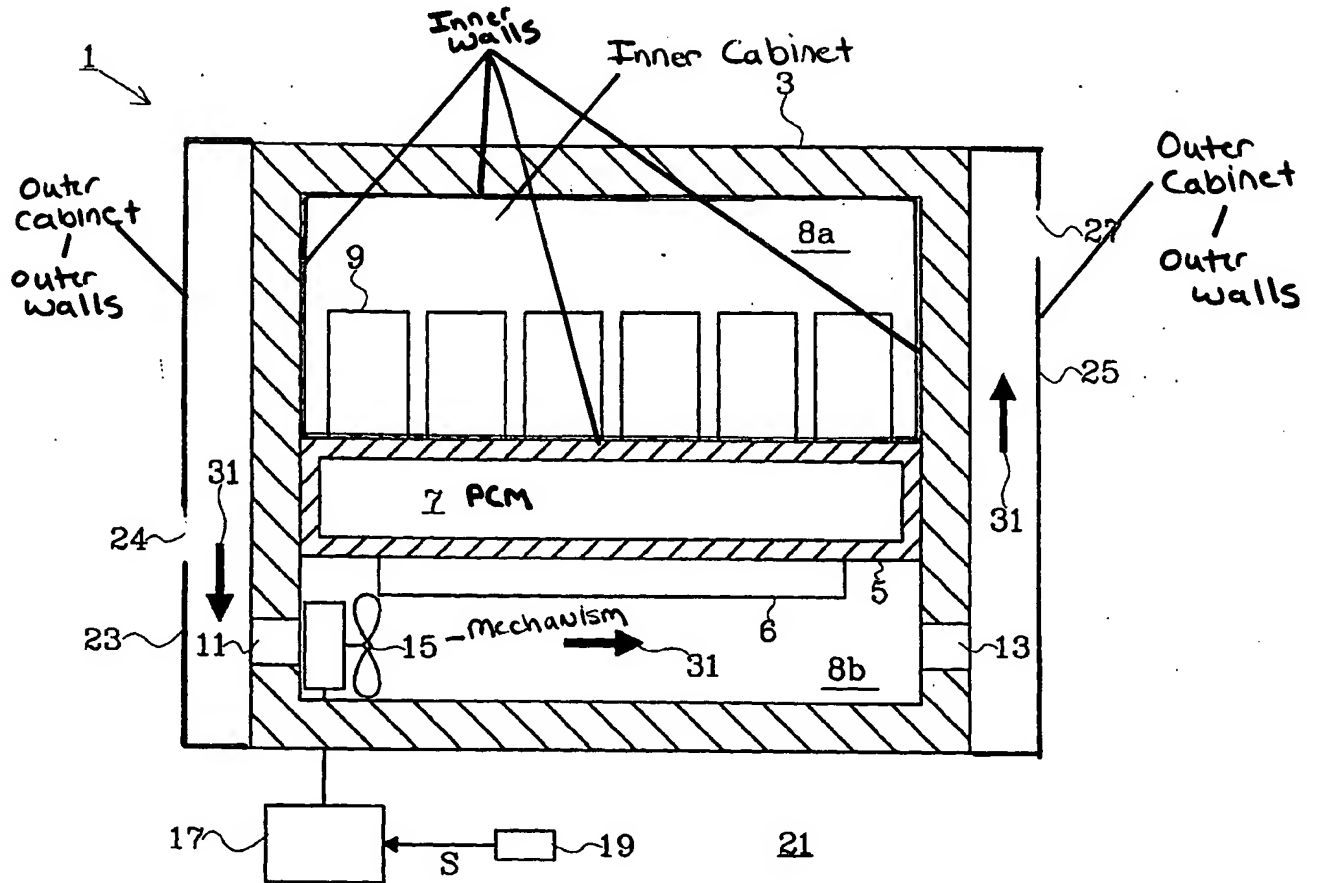


FIG. 1

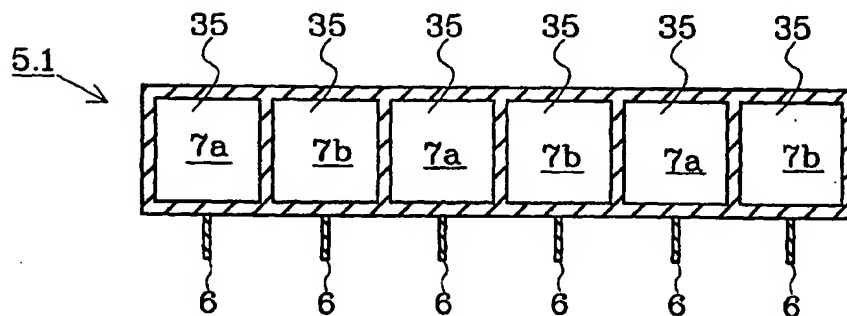


FIG. 2